

**IN THE CLAIMS**

1. (Canceled)

2. (Currently Amended) ~~The recording apparatus for a tape-shaped recording medium in accordance with claim 1, wherein:~~ A recording apparatus for a tape-shaped recording medium having an anisotropic property oblique in a direction relative to a thickness direction thereof, said recording apparatus comprising:

transfer means capable for transferring said tape-shaped recording medium in a forward direction in both a recording mode and a reproducing mode and capable for transferring said tape-shaped recording medium in a reverse direction in both said recording mode and said reproducing mode;

a recording head arranged to create a recording track in a direction parallel to said forward or reverse transfer directions of said tape-shaped recording medium;

a signal-processing unit connected to said recording head and supplied with a signal to be recorded for carrying out signal processing required for a recording operation on the signal to be recorded; and

a control unit for controlling operations of said signal-processing unit, for forming a judgment as to whether a transfer direction of said tape-shaped recording medium transferred by said transfer means is said forward direction or said reverse direction, and for controlling said signal-processing unit in accordance with a result of said judgment, wherein

when an outcome of said judgment indicates said transfer direction of said tape-shaped recording medium is said forward direction, said control unit controls said signal-processing unit so that a recording current supplied to said recording head is set at a value greater than a value of a recording current

supplied to said recording head while said magnetic tape is traveling in said reverse direction.

3. (Previously Presented) The recording apparatus for a tape-shaped recording medium in accordance with claim 2, wherein:

when a magnetic head causing a small thermal asperity noise is employed as said recording head, said control unit controls said signal-processing unit so that said signal to be recorded is subjected to an encoding process adopting a method known as partial response class 4.

4. (Previously Presented) The recording apparatus for a tape-shaped recording medium in accordance with claim 2, wherein:

when a magnetic head causing a large thermal asperity noise is employed as said recording head, said control unit controls said signal-processing unit so that a line recording density is increased to a value greater than a value of a line recording density for said reverse direction.

5. (Previously Presented) The recording apparatus for a tape-shaped recording medium in accordance with claim 4, wherein said control unit increases a frequency of a clock signal supplied to said signal-processing unit.

6. (Currently Amended) ~~The recording apparatus for a tape-shaped recording medium in accordance with claim 1, wherein:~~  
A recording apparatus for a tape-shaped recording medium having an anisotropic property oblique in a direction relative to a thickness direction thereof, said recording apparatus comprising:

transfer means capable for transferring said tape-shaped recording medium in a forward direction in both a recording mode and a reproducing mode and capable for transferring said tape-shaped recording medium in a reverse direction in both said recording mode and said reproducing mode;

a recording head arranged to create a recording track in a direction parallel to said forward or reverse transfer directions of said tape-shaped recording medium;

a signal-processing unit connected to said recording head and supplied with a signal to be recorded for carrying out signal processing required for a recording operation on the signal to be recorded; and

a control unit for controlling operations of said signal-processing unit, for forming a judgment as to whether a transfer direction of said tape-shaped recording medium transferred by said transfer means is said forward direction or said reverse direction, and for controlling said signal-processing unit in accordance with a result of said judgment, wherein

when an outcome of said judgment indicates that said transfer direction of said tape-shaped recording medium is said reverse direction, said control unit controls said signal-processing unit so that a recording current supplied to said recording head is set at a value smaller than a value of a recording current supplied to said recording head while said magnetic tape is traveling in said forward direction.

7. (Previously Presented) The recording apparatus for a tape-shaped recording medium in accordance with claim 6, wherein:

when a magnetic head causing a small thermal asperity noise is employed as said recording head, said control unit controls said signal-processing unit so that said signal to be recorded is subjected to an encoding process adopting a method known as partial response class 1.

8. (Previously Presented) The recording apparatus for a tape-shaped recording medium in accordance with claim 6, wherein:

when a magnetic head causing a large thermal asperity noise is employed as said recording head, said control unit controls

said signal-processing unit so that a line recording density is decreased to a value smaller than a value of a line recording density for said forward direction.

9. (Previously Presented) The recording apparatus for a tape-shaped recording medium in accordance with claim 8, wherein said control unit decreases a frequency of a clock signal supplied to said signal-processing unit.

10. (Canceled)

11. (Currently Amended) ~~The reproducing apparatus for a tape-shaped recording medium in accordance with claim 10,~~ A reproducing apparatus for a tape-shaped recording medium having an anisotropic property oblique in a direction relative to a thickness direction thereof, said reproducing apparatus comprising:

transfer means capable for transferring said tape-shaped recording medium in a forward direction in both a recording mode and a reproducing mode and capable for transferring said tape-shaped recording medium in a reverse direction in both said recording mode and said reproducing mode;

a reproducing head for scanning said tape-shaped recording medium along a recording track created in a direction parallel to said transfer directions of said tape-shaped recording medium;

a signal-processing unit supplied with an output signal from said reproducing head for carrying out signal processing required for a reproducing operation on an output signal from said reproducing head; and

a control unit for controlling operations of said signal-processing unit, for forming a judgment as to whether said transfer direction of said tape-shaped recording medium transferred by said transfer means is said forward direction or said reverse direction, and for controlling said signal-processing unit in accordance with a result of said judgment,

wherein said control unit switches signal processing carried out on a phase characteristic in said signal processing unit from a first kind of processing to a second kind of processing in dependence on an outcome of said judgment.

12. (Previously Presented) The reproducing apparatus for a tape-shaped recording medium in accordance with claim 11, wherein:

when an outcome of said judgment indicates that said transfer direction of said tape-shaped recording medium is said forward direction, said signal-processing unit carries out signal processing on said phase characteristic of said reproduced signal output by said reproducing head at a first angle over the entire frequency band of said reproduced signal.

13. (Previously Presented) The reproducing apparatus for a tape-shaped recording medium in accordance with claim 12, wherein:

when a magnetic head causing a small thermal asperity noise is employed as said reproducing head, said control unit controls said signal-processing unit so that said reproduced signal output by said reproducing head is subjected to signal processing carried out on a frequency characteristic by adoption of a method known as partial response class 4.

14. (Previously Presented) The reproducing apparatus for a tape-shaped recording medium in accordance with claim 13, wherein, after said signal processing is carried out on said phase characteristic of said reproduced signal output by said reproducing head, said signal-processing unit carries out decoding processing by adoption of a method known as partial response class 4 on said reproduced signal.

15. (Previously Presented) The reproducing apparatus for a tape-shaped recording medium in accordance with claim 12, wherein:

a magnetic head causing a large thermal asperity noise is employed as said reproducing head; and

said control unit controls said signal-processing unit so that said reproduced signal output by said reproducing head is subjected to signal processing carried out on a frequency characteristic thereof.

16. (Previously Presented) The reproducing apparatus for a tape-shaped recording medium in accordance with claim 15, wherein, after said signal processing is carried out on said phase characteristic of said reproduced signal output by said reproducing head, said signal-processing unit carries out decoding processing by adoption of a method known as partial response class 4 on said reproduced signal.

17. (Previously Presented) The reproducing apparatus for a tape-shaped recording medium in accordance with claim 11, wherein:

when an outcome of said judgment indicates that said transfer direction of said tape-shaped recording medium is said reverse direction, said signal-processing unit carries out signal processing on said phase characteristic of said reproduced signal output by said reproducing head at a predetermined angle over an entire frequency band of said reproduced signal.

18. (Previously Presented) The reproducing apparatus for a tape-shaped recording medium in accordance with claim 17, wherein:

when a magnetic head causing a small thermal asperity noise is employed as said reproducing head, said control unit controls said signal-processing unit so that said reproduced signal output by said reproducing head is subjected to signal processing carried out on a frequency characteristic by adoption of a method known as partial response class 1.

19. (Previously Presented) The reproducing apparatus for a tape-shaped recording medium in accordance with claim 18, wherein, after said signal processing is carried out on said phase characteristic of said reproduced signal output by said reproducing head, said signal-processing unit carries out decoding processing by adoption of a method known as partial response class 1 on said reproduced signal.

20. (Previously Presented) The reproducing apparatus for a tape-shaped recording medium in accordance with claim 17, wherein:

a magnetic head causing a large thermal asperity noise is employed as said reproducing head; and

said control unit controls said signal-processing unit so that said reproduced signal output by said reproducing head is subjected to signal processing carried out on a frequency characteristic thereof.

21. (Previously Presented) The reproducing apparatus for a tape-shaped recording medium in accordance with claim 20, wherein, after said signal processing is carried out on said phase characteristic of said reproduced signal output by said reproducing head, said signal-processing unit carries out decoding processing by adoption of a method known as partial response class 4 on said reproduced signal.

22. (Canceled)

23. (Currently Amended) ~~The recording and reproducing apparatus for a tape-shaped recording medium in accordance with claim 22, wherein:~~ A recording and reproducing apparatus for a tape-shaped recording medium having an anisotropic property oblique in a direction relative to a thickness direction thereof, said recording and reproducing apparatus comprising:

transfer means capable for transferring said tape-shaped recording medium in a forward direction in both a recording mode and a reproducing mode and capable for transferring said

tape-shaped recording medium in a reverse direction in both said recording mode and said reproducing mode;

a recording and/or reproducing head arranged to create a recording track in a direction parallel to said forward and reverse transfer directions of said tape-shaped recording medium for scanning said tape-shaped recording medium along said recording track;

a signal-processing unit connected to said recording and/or reproducing head and supplied with a signal to be recorded and with an output signal from said reproducing head, said signal-processing unit carrying out signal processing required for the recording operation on a signal to be recorded and carrying out signal processing required for a reproducing operation on the output signal from said reproducing head; and

a control unit for controlling operations of said signal-processing unit, for forming a judgment as to whether said transfer direction of said tape-shaped recording medium transferred by said transfer means is said forward direction or said reverse direction, and for controlling said signal-processing unit in accordance with a result of said judgment, wherein

when a magnetic head causing a small thermal asperity noise is employed as said recording head and an outcome of said judgment indicates that said transfer direction of said tape-shaped recording medium is said forward direction, said control unit controls said signal-processing unit so that said signal to be recorded is subjected to an encoding process adopting a method known as partial response class 4.

24. (Previously Presented) The recording and reproducing apparatus for a tape-shaped recording medium in accordance with claim 23, wherein said control unit controls said signal-processing unit so that a recording current supplied to said recording head is set at a value greater than a value of a



recording current supplied to said recording head when said magnetic tape is traveling in said reverse direction.

25. (Previously Presented) The recording and reproducing apparatus for a tape-shaped recording medium in accordance with claim 23, wherein:

when an outcome of said judgment indicates that said transfer direction of said tape-shaped recording medium is said direction, said control unit controls said signal-processing unit so that said signal to be recorded is subjected to an encoding process adopting a method known as partial response class 1.

26. (Previously Presented) The recording and reproducing apparatus for a tape-shaped recording medium in accordance with claim 25, wherein said control unit controls said signal-processing unit so that a recording current supplied to said recording head is set at a value smaller than a value of a recording current supplied to said recording head when said magnetic tape is traveling in said forward direction.

27. (Currently Amended) ~~The recording and reproducing apparatus for a tape-shaped recording medium in accordance with claim 22, wherein:~~ A recording and reproducing apparatus for a tape-shaped recording medium having an anisotropic property oblique in a direction relative to a thickness direction thereof, said recording and reproducing apparatus comprising:

transfer means capable for transferring said tape-shaped recording medium in a forward direction in both a recording mode and a reproducing mode and capable for transferring said tape-shaped recording medium in a reverse direction in both said recording mode and said reproducing mode;

a recording and/or reproducing head arranged to create a recording track in a direction parallel to said forward and reverse transfer directions of said tape-shaped recording medium

for scanning said tape-shaped recording medium along said recording track;

a signal-processing unit connected to said recording and/or reproducing head and supplied with a signal to be recorded and with an output signal from said reproducing head, said signal-processing unit carrying out signal processing required for the recording operation on a signal to be recorded and carrying out signal processing required for a reproducing operation on the output signal from said reproducing head; and

a control unit for controlling operations of said signal-processing unit, for forming a judgment as to whether said transfer direction of said tape-shaped recording medium transferred by said transfer means is said forward direction or said reverse direction, and for controlling said signal-processing unit in accordance with a result of said judgment, wherein

when a magnetic head causing a large thermal asperity noise is employed as said recording head and an outcome of said judgment indicates that said transfer direction of said tape-shaped recording medium is said forward direction, said control unit controls said signal-processing unit so that a line recording density is increased to a value greater than a value of a line recording density for said reverse direction.

28. (Previously Presented) The recording and reproducing apparatus for a tape-shaped recording medium in accordance with claim 27, wherein said control unit increases a frequency of a clock signal supplied to said signal-processing unit.

29. (Currently Amended) ~~The recording and reproducing apparatus for a tape-shaped recording medium in accordance with claim 22, wherein:~~ A recording and reproducing apparatus for a tape-shaped recording medium having an anisotropic property oblique in a direction relative to a thickness direction thereof, said recording and reproducing apparatus comprising:

transfer means capable for transferring said tape-shaped recording medium in a forward direction in both a recording mode and a reproducing mode and capable for transferring said tape-shaped recording medium in a reverse direction in both said recording mode and said reproducing mode;

a recording and/or reproducing head arranged to create a recording track in a direction parallel to said forward and reverse transfer directions of said tape-shaped recording medium for scanning said tape-shaped recording medium along said recording track;

a signal-processing unit connected to said recording and/or reproducing head and supplied with a signal to be recorded and with an output signal from said reproducing head, said signal-processing unit carrying out signal processing required for the recording operation on a signal to be recorded and carrying out signal processing required for a reproducing operation on the output signal from said reproducing head; and

a control unit for controlling operations of said signal-processing unit, for forming a judgment as to whether said transfer direction of said tape-shaped recording medium transferred by said transfer means is said forward direction or said reverse direction, and for controlling said signal-processing unit in accordance with a result of said judgment, wherein

when a magnetic head causing a large thermal asperity noise is employed as said recording head and an outcome of said judgment indicates that said transfer direction of said tape-shaped recording medium is said reverse direction, said control unit controls said signal-processing unit so that a line recording density is decreased to a value smaller than a value of a line recording density for said forward direction.

30. (Previously Presented) The recording and reproducing apparatus for a tape-shaped recording medium in accordance with

claim 29, wherein said control unit decreases a frequency of a clock signal supplied to said signal-processing unit.

31. (Currently Amended) ~~The recording and reproducing apparatus for a tape-shaped recording medium in accordance with claim 22, wherein:~~ A recording and reproducing apparatus for a tape-shaped recording medium having an anisotropic property oblique in a direction relative to a thickness direction thereof, said recording and reproducing apparatus comprising:

transfer means capable for transferring said tape-shaped recording medium in a forward direction in both a recording mode and a reproducing mode and capable for transferring said tape-shaped recording medium in a reverse direction in both said recording mode and said reproducing mode;

a recording and/or reproducing head arranged to create a recording track in a direction parallel to said forward and reverse transfer directions of said tape-shaped recording medium for scanning said tape-shaped recording medium along said recording track;

a signal-processing unit connected to said recording and/or reproducing head and supplied with a signal to be recorded and with an output signal from said reproducing head, said signal-processing unit carrying out signal processing required for the recording operation on a signal to be recorded and carrying out signal processing required for a reproducing operation on the output signal from said reproducing head; and

a control unit for controlling operations of said signal-processing unit, for forming a judgment as to whether said transfer direction of said tape-shaped recording medium transferred by said transfer means is said forward direction or said reverse direction, and for controlling said signal-processing unit in accordance with a result of said judgment, wherein

when a magnetic head causing a small thermal asperity noise is employed as said recording head and an outcome of said judgment indicates that said transfer direction of said tape-shaped recording medium is said forward direction, said control unit controls said signal-processing unit so that said reproduced signal output by said reproducing head is subjected to signal processing carried out on a frequency characteristic by adoption of a method known as partial response class 4.

32. (Previously Presented) The recording and reproducing apparatus for a tape-shaped recording medium in accordance with claim 31, wherein said signal-processing unit carries out signal processing on a phase characteristic of said reproduced signal output by said reproducing head at a first angle over an entire frequency band of said reproduced signal.

33. (Previously Presented) The recording and reproducing apparatus for a tape-shaped recording medium in accordance with claim 32, wherein, after said signal processing is carried out on said phase characteristic of said reproduced signal output by said reproducing head, said signal-processing unit carries out decoding processing by adoption of a method known as partial response class 4 on said reproduced signal.

34. (Previously Presented) The recording and reproducing apparatus for a tape-shaped recording medium in accordance with claim 32, wherein:

when a magnetic head causing a small thermal asperity noise is employed as said recording head and an outcome of said judgment indicates that said transfer direction of said tape-shaped recording medium is said reverse direction, said control unit controls said signal-processing unit so that said reproduced signal output by said reproducing head is subjected to signal processing carried out on a frequency characteristic by adoption of a method known as partial response class 1.

35. (Previously Presented) The recording and reproducing apparatus for a tape-shaped recording medium in accordance with claim 34, wherein said signal-processing unit carries out signal processing on a phase characteristic of said reproduced signal output by said reproducing head at a predetermined angle over an entire frequency band of said reproduced signal.

36. (Previously Presented) The recording and reproducing apparatus for a tape-shaped recording medium in accordance with claim 35, wherein, after said signal processing is carried out on said phase characteristic of said reproduced signal output by said reproducing head, said signal-processing unit carries out decoding processing by adoption of a method known as partial response class 1 on said reproduced signal.

37. (Currently Amended) ~~The recording and reproducing apparatus for a tape-shaped recording medium in accordance with claim 22, wherein:~~ A recording and reproducing apparatus for a tape-shaped recording medium having an anisotropic property oblique in a direction relative to a thickness direction thereof, said recording and reproducing apparatus comprising:

transfer means capable for transferring said tape-shaped recording medium in a forward direction in both a recording mode and a reproducing mode and capable for transferring said tape-shaped recording medium in a reverse direction in both said recording mode and said reproducing mode;

a recording and/or reproducing head arranged to create a recording track in a direction parallel to said forward and reverse transfer directions of said tape-shaped recording medium for scanning said tape-shaped recording medium along said recording track;

a signal-processing unit connected to said recording and/or reproducing head and supplied with a signal to be recorded and with an output signal from said reproducing head, said signal-processing unit carrying out signal processing required for the

recording operation on a signal to be recorded and carrying out signal processing required for a reproducing operation on the output signal from said reproducing head; and

a control unit for controlling operations of said signal-processing unit, for forming a judgment as to whether said transfer direction of said tape-shaped recording medium transferred by said transfer means is said forward direction or said reverse direction, and for controlling said signal-processing unit in accordance with a result of said judgment, wherein

when a magnetic head causing a large thermal asperity noise is employed as said recording head and an outcome of said judgment indicates that said transfer direction of said tape-shaped recording medium is said forward direction, said control unit controls said signal-processing unit so that said reproduced signal output by said reproducing head is subjected to signal processing carried out on a frequency characteristic.

38. (Previously Presented) The recording and reproducing apparatus for a tape-shaped recording medium in accordance with claim 37, wherein said signal-processing unit carries out signal processing on a phase characteristic of said reproduced signal output by said reproducing head at a first angle over an entire frequency band of said reproduced signal.

39. (Previously Presented) The recording and reproducing apparatus for a tape-shaped recording medium in accordance with claim 38, wherein, after said signal processing is carried out on said phase characteristic of said reproduced signal output by said reproducing head, said signal-processing unit carries out decoding processing on said reproduced signal by adoption of a method known as partial response class 4.

40. (Currently Amended) ~~The recording and reproducing apparatus for a tape-shaped recording medium in accordance with claim 22, wherein:~~ A recording and reproducing apparatus for a

tape-shaped recording medium having an anisotropic property oblique in a direction relative to a thickness direction thereof, said recording and reproducing apparatus comprising:

transfer means capable for transferring said tape-shaped recording medium in a forward direction in both a recording mode and a reproducing mode and capable for transferring said tape-shaped recording medium in a reverse direction in both said recording mode and said reproducing mode;

a recording and/or reproducing head arranged to create a recording track in a direction parallel to said forward and reverse transfer directions of said tape-shaped recording medium for scanning said tape-shaped recording medium along said recording track;

a signal-processing unit connected to said recording and/or reproducing head and supplied with a signal to be recorded and with an output signal from said reproducing head, said signal-processing unit carrying out signal processing required for the recording operation on a signal to be recorded and carrying out signal processing required for a reproducing operation on the output signal from said reproducing head; and

a control unit for controlling operations of said signal-processing unit, for forming a judgment as to whether said transfer direction of said tape-shaped recording medium transferred by said transfer means is said forward direction or said reverse direction, and for controlling said signal-processing unit in accordance with a result of said judgment, wherein

when a magnetic head causing a large thermal asperity noise is employed as said recording head and an outcome of said judgment indicates that said transfer direction of said tape-shaped recording medium is said reverse direction, said control unit controls said signal-processing unit so that said



reproduced signal output by said reproducing head is subjected to signal processing carried out on a frequency characteristic.

41. (Previously Presented) The recording and reproducing apparatus for a tape-shaped recording medium in accordance with claim 40, wherein said signal-processing unit carries out signal processing on a phase characteristic of said reproduced signal output by said reproducing head at a predetermined angle over an entire frequency band of said reproduced signal.

42. (Previously Presented) The recording and reproducing apparatus for a tape-shaped recording medium in accordance with claim 41, wherein, after said signal processing is carried out on said phase characteristic of said reproduced signal output by said reproducing head, said signal-processing unit carries out decoding processing on said reproduced signal by adoption of a method known as partial response class 4.